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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/024,582	12/21/2001	Dong Ho Kang	041501-5484	2488
9629	7590	11/16/2004	EXAMINER	
MORGAN LEWIS & BOCKIUS LLP 1111 PENNSYLVANIA AVENUE NW WASHINGTON, DC 20004			NGO, HUYEN LE	
			ART UNIT	PAPER NUMBER
			2871	

DATE MAILED: 11/16/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/024,582

Applicant(s)

KANG ET AL.

Examiner

Julie-Huyen L. Ngo

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 20 September 2004.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-9 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-9 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                        | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)    | Paper No(s)/Mail Date. _____  |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____   | 6) <input type="checkbox"/> Other: _____                                    |

***Continued Examination Under 37 CFR 1.114***

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on September 20, 2004 has been entered.

***Response to Amendment***

The amendment filed on August 19, 2004 is objected to under 35 U.S.C. 132 because it introduces new matter into the disclosure. 35 U.S.C. 132 states that no amendment shall introduce new matter into the disclosure of the invention. The added material, which is not supported by the original disclosure, is as follows:

In claims 1 and 5, the recitation calling for "*wherein each of the plurality of column spacers are separated from one another and are disposed at intersections of the gate and data lines.*" introduces new matter to the disclosure. Applicant is to note that not every spacer is disposed at the intersection of the gate and data lines. See figure 4.

Applicant is required to cancel the new matter in the reply to this Office Action.

**DETAILED ACTION**

***Claim Rejections - 35 USC § 112***

The following is a quotation of the first paragraph of 35 U.S.C. 112:

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The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 1-9 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter, which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

In claims 1 and 5, "*wherein each of the plurality of column spacers are separated from one another and are disposed at intersections of the gate and data lines.*" Applicant is to note that not every spacer is disposed at the intersection of the gate and data lines. See figure 4.

Claims not specifically mentioned above are rejected as bearing the defect(s) of the claim(s) from which they depend.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter, which the applicant regards as his invention.

Claims 1-9 are rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential structural cooperative relationships of elements, such omission amounting to a gap between the necessary structural connections. See MPEP § 2172.01. The omitted structural cooperative relationships are:

Claims 2 and 5 are incomplete for omitting the structural cooperative relationship of the elements in the LCD device, for example, the spacers and the pixels with respect

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to the gate and data lines. See figure 4, the spacer is provided at every two pixels in one direction and at every three pixels in a different direction.

Claim 7 is incomplete for omitting the structural relationship of the spacers with respect to other elements such as the gate or data lines. It is unclear how the spacers are spaced apart from one another, for example in what direction or with respect to which elements, i.e., the data lines or the gate lines?

Claims not specifically mentioned above are rejected as bearing the defect(s) of the claim(s) from which they depend.

### ***Specification***

The abstract of the disclosure is objected to because it describes what are not part of the invention, e.g., a TFT substrate including a plurality of pixels of R, G, and B; a plurality of column spacers selectively formed on one of the TFT substrate and the color filter substrate. Applicant is to note that the plurality of pixels of R, G, and B is formed/included in the color substrate NOT the TFT substrate. Also the plurality of column spacers selectively formed only on the color filter substrate 31a. See amended paragraph 0037 filed on 3/23/04. Correction is required. See MPEP § 608.01(b).

The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

### ***Claim Objections***

Claims 1–4 are objected to because of the recitation in claim 1, which recites, ***“the plurality of column spacers selectively formed on one of the TFT substrate and the color filter substrate”***. The language of the claim can be construed that the plurality of column spacers is selectively formed on either one of the substrates. Appropriate correction is required.

For examination purpose, the claims are interpreted according to the original disclosure and as show in figure 4.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

Claims 1, 3, 5 and 9 are rejected under 35 U.S.C. 102(e) as being anticipated by Ikeda et al (US 6671025 B1).

Claims 1 and 5:

Ikeda et al teach (e.g., figures 3&5) forming a LCD device comprising:

- a TFT substrate 30 including a plurality of pixels, gate lines 33b and data lines 33a;
- a color filter substrate 40 that is spaced apart from the TFT substrate
- a plurality of column spacers 45 selectively formed on the color filter substrate 40, the column spacers having a semi-spherically shaped end portion adjacent to the other substrate, which the plurality of column spacers 45 are not formed;
- a liquid crystal layer 49 injected between the TFT substrate and the color filter substrate.

Claim 3:

- each of the plurality of column spacers has a contact area region contacting the substrate, which the column spacers are formed thereon, the contact region having a square shape.

Claim 9:

- the semi-spherically shaped end portion has a contact area contacting the other substrate, which the column spacers are not formed on, the contact area having a dot shape.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 2 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ikeda et al as applied to claims 1 and 5 above, and further in view of Miyazaki et al (US 5978061) and Yanagawa et al (US 6583846 B1).

Yanagawa et al teach (figure 28A) distributing spacers 10 uniformly over the entire display area, and each of the spacers 10 is allotted to a group comprising the equal number of adjacent pixels, e.g., at every two pixels. The number of the spacers 10 disposed in the display area is reduced so as to reduce the orientation defects caused by the spacers 10. This prevents occurrence of unintentional contrast produced by light leakage, especially in displaying of a black image. However, It is well known in the art for one column spacer be provided for every two pixels (claim 2), as evidenced by Miyazaki et al. (figure 20), and a plurality of spacers are arranged in diamond shapes (claim 6), as evidenced by Yanagawa et al (figure 28A).

Therefore, it would have been obvious for one of ordinary skill in the art to reduce the spacers in Ikeda et al LCD device with one spacer for every two pixels (claim 2) or in diamond shapes (claim 6) for improving the display quality of Ikeda et al. LCD, as taught by Miyazaki et al. and Yanagawa et al.



***Allowable Subject Matter***

Claims 4 and 8 would be allowable if rewritten to include all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter:

Claims 4 and 8 would be allowable because there is no prior art of record that teaches a LCD comprise:

Each of a plurality of spacers has a contact region contacting the color filter substrate; the contact region has a square shape with one protrusion extending from each of four sides of the square shape.

***Response to Arguments***

Applicant's arguments filed on August 19, 2004 have been fully considered but they are not persuasive.

Applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., *each of the plurality of column spacers is disposed at intersections of the gate and data lines*) are not recited in the rejected claims 1 and 5. Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993). However, this limitation was not even described in the specification as original filed, and has

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generated new issues to claims 1 and 5 since only one spacer is disposed at every two pixels along the column direction (see figure 4).


***Contact Information***

Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Julie-Huyen L. Ngo whose telephone number is (571) 272-2295. The Examiner can normally be reached on T-Friday.

If attempts to reach the Examiner by telephone are unsuccessful, the Examiner's Supervisor, Mr. Robert H. Kim can be reached at (571) 272-2293.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (571) 272-1562.

November 12, 2004



***Julie-Huyen L. Ngo***  
***Patent Examiner***  
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